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ABSTRACT

The current state of vocational education is one of change and exceptional vitality, tempered by concern. In fiscal year 1983 vocational educators have continued to be concerned with National needs, vocational education has emphasized closer and more effective collaboration with private business and industry, and vocational education's national professional associations and centers of research have focused on keeping current and improving program quality. In the future, vocational education must face up to three categories of "dimensions of change": technological, economic, and demographic. Some areas of concern that need special emphasis by vocational education in the future are partnerships and collaboration; curriculum development; skilled work force development; a closer working relationship with the defense industrial base, active military, and reserve forces; equity and access; governance; dropouts; and educational reform. (Eleven pages within the paper present five tables, one figure, and narrative material on the status of vocational education for the period 1981-83. Topics include appropriations, enrollments, state and local administration of vocational programs, and outlays of Federal funds for such services as vocational instruction under contract, construction of area vocational schools, operation of residential vocational schools, vocational work study, placement, and stipends. Questions and answers are appended.) (YLB)

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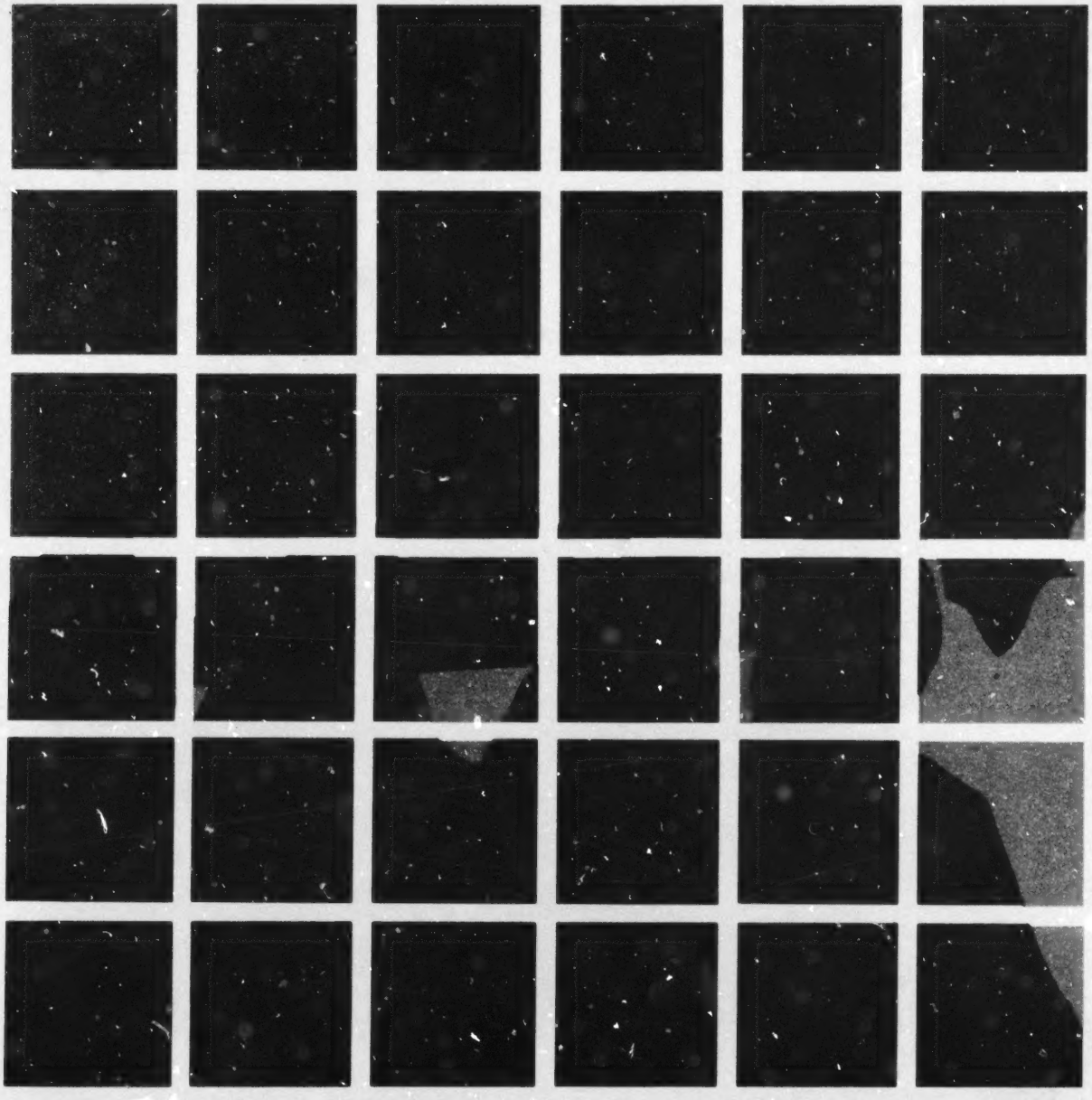

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Occasional Paper No. 101

VOCATIONAL EDUCATION IN THE UNITED STATES: RETROSPECT AND PROSPECT

by

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1984

FOREWORD

In the past 20 years, vocational education has experienced incredible growth. Enrollments in vocational programs have quadrupled to 16 million, the number of area vocational schools has risen from 600 to 9,000, and current expenditures for public vocational education programs are over $7 billion.

Today, in addition to the more traditional areas, vocational education is concerned with access for special populations, such as disadvantaged, handicapped, limited-English proficient, and older individuals. Another major thrust is the retraining of displaced workers, as well as other economic development initiatives aimed at contributing to the revitalization of the Nation's economy. Vocational education is clearly a significant and valued component of our educational system.

Dr. Robert M. Worthington's presentation, "Vocational Education in the United States: Retrospect and Prospect," helps us gain perspective on where our field is today, and more important, what the future holds. He is uniquely qualified to address the topic, having served as Assistant Secretary for the Office of Vocational and Adult Education in the United States Department of Education since 1981. Prior to this appointment, he served as Associate Commissioner of Higher Education in Utah.

The list of Robert Worthington's professional accomplishments is really too long to enumerate here. Those mentioned show the breadth and depth of his experience in vocational education. He served as Associate U.S. Commissioner of Education and Director of the Bureau of Adult, Vocational, and Technical Education, as a member of the President's National Advisory Council on Vocational Education, and on the Executive Committee of the President's Committee for Employment of the Handicapped. He was also Assistant State Commissioner of Education and State Director of Vocational, Technical and Adult Education in the State of New Jersey. In the Minnesota State Department of Education, he served as Supervisor of Veterans' Training and Industrial Education. Dr. Worthington has also been Professor and Chairman of the Department of Industrial Education and Technology at Trenton State College, and has taught at Rutgers University, Boston University, and other institutions.

The author of numerous books and articles, Dr. Worthington is active in international educational affairs. He has represented the United States at world conferences in Geneva, Paris, and Hamburg. He headed the U.S. delegation to the Unesco World Conference on Adult Education and Lifelong Learning in Tokyo, and was this country's delegate to the Organization for Economic Cooperation and Development.

The National Center for Research in Vocational Education and The Ohio State University are pleased to present Dr. Worthington's paper as it was delivered at the National Center. A videotape of the seminar is also available from the National Center.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

VOCATIONAL EDUCATION IN THE UNITED STATES: RETROSPECT AND PROSPECT

A Historical Perspective

The Constitution of the United States did not provide for education as a Federal responsibility. Down through the years, education has become a *concern* of the Federal Government, a *function* of State governments, but a *responsibility* of local citizens throughout the land. Vocational education has in some form or other always been a part of the American educational system. Even in the early colonial era, the apprenticeship form of training, imported from Europe, was rather widely practiced.

During the industrialization of America in the 19th century, a demand for skilled labor developed that spawned a movement for free public education. With this movement came the trade unions who were among the earlier supporters of vocational education in America. With the passage of the Morrill Land-Grant Act in 1862, institutions were established to provide training in agriculture and the mechanical arts. In the early 1900s, the National Society for the Promotion of Industrial Education was formed. Beginning about 1906, this society began a long-range promotion of Federal legislation for vocational education culminating in the Smith-Hughes Act of 1917, the model for most subsequent education legislation that provided for cooperation between the States and the Federal Government.

Although the act was limited to training in agriculture, trade and industrial education, and home economics, it had a most significant impact on America's educational system and continues its influence to this day. This Federal legislation defined the scope of vocational education and provided some Federal funding. The importance of vocational education as a critical training component for the war effort was apparent in World War II when nearly 7.5 million persons were trained by vocational educators for National defense and war production work.

President Kennedy's Panel of Consultants, another significant event in the development of vocational education, was established shortly after his election and led to the development and passage of the Vocational Education Act of 1963. About this time, in fact on the very day that this legislation took effect, it was my good fortune to be appointed State director of vocational education in the Nation's most highly industrialized State, New Jersey.

The Vocational Education Act of 1963 and the 1968 Amendments provided for redirection, revitalization, and expansion of vocational education. It broadened vocational education to include research, curriculum development, personnel and leadership development, cooperative education, and work study. This legislation provided a good deal of flexibility and made it possible for the States to expand, improve, innovate, and develop new approaches to education and training for employment.

I was reminded recently of the relationship between the 1963 act and my entry into vocational education when during my testimony before Senator Stafford's Subcommittee on Education on

February 23, 1983, Senator Ted Kennedy referred to President Kennedy's commitment and leadership in developing the Vocational Education Act of 1963. He asked the question, "If this landmark legislation was good when it became law, why is it not good now." In a letter responding to this question, I said, "I want you to know that I was the newly appointed State director of vocational education in New Jersey when the recommendations of your brother's Panel on Vocational Education were being implemented by the 1963 act. At the time of its passage, I thought it was one of the greatest things that had ever happened to vocational education—and I still do. Unfortunately, the current vocational education act is a far cry from the 1963 act. Each time the Congress amended the statute it became more complicated, more technical, more prescriptive, and took control away from the States."

The Vocational Education Act of 1963 underwent a series of amendments in 1972 and in 1976. The establishment of a National data system, sex equity staffing at the State level, programs for limited-English-speaking adults, and many additional requirements were made of the States that led to increased administrative burden and unnecessary red tape.

Federal legislation aimed at the unemployed and hard-core disadvantaged emerged in the form of the Manpower Development and Training Act, the Comprehensive Employment and Training Act (CETA), and the Job Training Partnership Act. All of these acts administered by the U.S. Department of Labor, have had a significant impact on vocational education.

The State of the Art: Vocational Education 1983

With that quick look at the historical antecedents to vocational education, let me now provide you with a more comprehensive view of the enterprise.

Since my appointment as Assistant Secretary for Vocational and Adult Education, I have tried to clarify the purposes and contributions of vocational education to the Nation's economic revitalization, defense preparedness, and skilled work force development. For the layperson, vocational education is extremely difficult to comprehend. It is a multifaceted, multilevel, multi-institutional program whose very diversity is both a strength and a weakness. Vocational education probably is best defined as a series of organized experiences designed to prepare an individual for employment in a recognized occupation.

Obviously, vocational education cannot be treated as a single homogeneous program. It is many programs with widely differing purposes, ranging from the career guidance or orientation function of prevocational industrial arts and the family-consumer focus of consumer and homemaking education, through the exploration and clustered skills preparation in the high school, to the high-skills training and technical education at the postsecondary level. It also contains special education for the physically handicapped, basic education for limited-English-proficient adults, and pre-engineering education for technicians, among other specialized offerings—clearly, and impressively, a broad spectrum of programs. Its program support mechanisms similarly cover a wide span, from outreach efforts aimed at women reentering the labor market in nontraditional occupations, through the highly successful student organizations such as the Future Farmers of America, to higher education institutions for training vocational teachers, counselors, and administrators.

Further, vocational education is offered in an almost bewildering array of institutions, each type with its own approach, structure, funding mechanisms, legal powers, and other characteristics. According to our latest data,[1] this array includes: 15,706 public comprehensive or vocational

[1] *Digest of Education Statistics*, National Center for Education Statistics, 1983-84, Table 138, p. 160.

high schools; 1,394 public area vocational centers; 586 private secondary schools; 811 public noncollegiate postsecondary institutions; 6,766 private noncollegiate postsecondary institutions; 1,118 2-year institutions of higher education (such as community colleges and technical institutes); 633 4-year institutions of higher education (which offer less than baccalaureate programs); 553 State correctional facilities; and 83 correspondence schools. This is a total of 27,650 institutions!

My comments on the state of vocational education, and the tables to which I will be referring, are drawn primarily from this year's report by the Secretary of Education to the Congress. As you know we are required by statute to provide the Congress, annually, with a status report on vocational education.

This year's report does not include information on individual exemplary programs, with the exception of the 10 recipients of the Secretary's Awards for Outstanding Vocational Education Programs. Instead, its focus is on the data made available to the U.S. Department of Education.

There are two consequences of choosing a highly data-intensive approach. First, the areas to be analyzed are limited to those for which common data are available. Second, insights regarding trends that do not lend themselves to a data-oriented format may be lost. For this reason, I will supplement my analyses with my impressions of what was developing in vocational education during fiscal year 1983.[2] During that year, I crisscrossed this Nation many times, saw many programs, and worked with many groups of vocational educators, as well as with others.

My overall impression of the current state of vocational education is one of change and exceptional vitality, tempered by concern. The Nation was going through a period (that has not yet ended) of rapid economic, technological, and demographic change that has the potential to leave many individual firms, even whole industries, and certainly some long-established programs, far behind in its wake. The question, always uppermost in my mind, was how well vocational education was keeping abreast of these changes and challenges.

Let me share with you some of the observations that stand out in my mind about fiscal year 1983. The year began with a National seminar sponsored jointly with the U. S. Department of Defense. This seminar, "Defense Preparedness and Vocational Education," highlighted 20 special projects in which both public and private vocational institutions were aiding in the training of skilled workers for defense firms and the military. All involved were convinced that vocational education had the potential to do much more. Later in the year, the first regional follow-up conference was held in Philadelphia.

The significance of this effort is that vocational educators continue to be concerned with National needs. I visited many programs (and have read reports of scores more) that, in one way or the other, were responding to the National need to revitalize our industrial base. Many were "quick start" programs for new or expanding firms. Some, such as one program in Pennsylvania for former railroad workers, were retraining unemployed adults for jobs in demand. Others were focusing on training entrepreneurs for the small businesses that provide many of our Nation's new jobs.

In all of these programs, there was emphasis on closer and more effective collaboration with private business and industry. One example was the community college program in telecommunications technology, jointly developed with a major telecommunications firm. Another example was the funding, donated by a major firm to the Vocational Industrial Clubs of America, one of vocational education's very successful student organizations. Still another example was the West Coast

[2]The term "fiscal year 1983" means the States' 1982-83 school year, beginning July 1, 1982, and ending June 30, 1983.

private corporation, jointly headed by educators and top-level business people, which brokered industrial training needs to member vocational and technical training institutions. This kind of collaboration was accelerating sharply during fiscal year 1983, and continues to grow.

An indicator of any enterprise's viability is the agenda of its National professional associations and of its centers of research. The American Vocational Association's 1983 National convention's theme was high technology and vocational education. Entire issues of its journal featured private sector collaboration, training for defense preparedness, and adult retraining, among other topics of National concern. The 1983 calendar of events for the National Academy for Vocational Education showed workshops throughout the United States on these same topics, plus others such as "Microcomputer Applications for Vocational Administrators," and "Older Adults: Using an Untapped Resource in Vocational Education," to name but two. Last but not least, the National Association of State Directors of Vocational Education began moving into program improvement in a major way, using its own professional development consortium.

All of these agenda reveal not only the focus of these organizations but also their determination—determination to keep up with the times and determination to improve program quality in all respects. In many meetings throughout the Nation, I participated in intense discussions of issues facing vocational education, of its future role, and of its present needs. It was made very clear that these needs included, among others, more accurate, usable work force demand and supply data; new ways to circumvent the high costs of replacing obsolete equipment with more technologically advanced equipment; better use of available resources to upgrade teacher knowledge and skills and to recruit new teachers; and use of new technologies and strategies to permit administrators to manage their programs and to avail themselves of innovations proven successful elsewhere in the Nation!

Vocational educators greatly accelerated the process of reaching out to other sectors, both public and private, as avenues for addressing these needs—an initiative and a process still gaining headway.

Fiscal year 1983 ended with an event of great importance for vocational education: the issuance of *Education for Tomorrow's Jobs*, the final report of the study conducted by the National Academy of Sciences and funded by the Office of Vocational and Adult Education. This report, together with the National seminar that followed (and the regional seminars held this past spring), provided a focus and a rallying point for a National debate on the many concerns I heard expressed during 1983. When this report was released, there were strong indications that it would prove to be a landmark study for vocational education, much as *A Nation at Risk* (report of The National Commission on Excellence in Education, 1983) proved to be for education as a whole. During fiscal year 1984, we in vocational education are taking a long hard look at the academy's report, the discussions from the regional seminars, and strategies for implementing the recommendations.

As you know, the purpose of the Vocational Education Act (VEA), as amended, is to assist the States in providing persons of all ages in communities with access to vocational training or retraining that is of high quality, that is realistic in light of actual or anticipated opportunities for gainful employment, and that is suited to these persons' needs, interests, and abilities to benefit from such training. The act also places major emphases on better planning for the use of all resources available to vocational education, on improved service to special populations, and on various aspects of sex equity. As was pointed out earlier, vocational education is offered in more than 27,000 secondary and postsecondary institutions (more than 6,900 of which are proprietary) and other private institutions not covered in my report. Vocational education not only is an integral part of

the Nation's education system, but also provides workforce training under other Federal Acts, while addressing both specific training needs of individual firms and national training needs in areas such as defense preparedness, productivity improvement, and economic revitalization.

Let me share with you a few tables selected from the Secretary's Report to Congress—

Appropriations

Table 1 lists the total Federal appropriations under VEA for fiscal years 1981, 1982, and 1983. Funds allocated from these appropriations by the U.S. Department of Education to the State boards for vocational education are made available for expenditure in the State fiscal year (i.e., the State school year) following their appropriation by the Congress. Thus, the fiscal year 1981 Federal appropriations under VEA were first available for expenditure by the States during their fiscal year 1982 (beginning July 1, 1981, and ending June 30, 1962). Under the Tydings Amendment (Section 412(b), General Education Provisions Act), these funds remained available for obligation by the States for an additional 15 months, or through September 30, 1983.

TABLE 1

FEDERAL APPROPRIATIONS UNDER THE VOCATIONAL EDUCATION ACT
Fiscal Years 1981-83

	1981	1982	1983
Basic Grants	$518,139,000	$497,280,000	$558,155,000
Program Improvement	93,323,000	89,590,000	99,590,000
Programs of National Significance	7,477,000	8,178,000	7,678,000
Special Programs for the Disadvantaged	14,954,000	14,356,000	14,356,000
Consumer and Homemaking Education	30,347,000	29,133,000	31,633,000
State Advisory Councils	6,500,000	6,500,000	6,500,000
Bilingual Vocational Training	3,960,000	3,683,000	3,686,000
State Planning	3,738,000	3,588,000	3,568,000
Smith-Hughes (Permanent Appropriation)	7,161,455	7,161,455	7,161,455
Total	$685,599,455	$659,472,455	$732,347,455
Total for Allocation to State Boards	$661,121,728	$634,813,648	$707,479,898

OUTLAYS

SOURCE: Vocational Education Report by the Secretary of Education to the Congress, 1983.

Some of the funds listed in table 1 are only for discretionary grants and contracts and are not allocated to State boards. These discretionary funds include: 1 percent of basic grants under subpart 2 and program improvement and supportive services under subpart 3 to be used for Indian vocational training; programs of National significance, including funds reserved for the National Occupational Information Coordinating Committee (NOICC); and bilingual vocational training. Similar to the discretionary funds, State advisory council funds are not distributed to the State boards for vocational education. These funds are disbursed directly to the councils, or to their designated fiscal agents.

Table 2 provides a detailed list of outlays by each section of the act and legislative program purpose, nationally aggregated. In 1981-82, State outlays for all VEA programs and proposes totalled over $8 billion. Of this amount, State and local funds accounted for over $7 billion or 91.6 percent, while Federal VEA funds administered by the States accounted for $679 million or 8.4 percent. Compared to 1980-81, State and local (i.e., non-Federal) funds increased by 12.5 percent, while Federal VEA funds fell by 5.5 percent; taken together, the overall outlays increased by more than $780 million or by 10.7 percent.

As shown in Figure 1, outlays for vocational education have been steadily increasing over the past decade (1973 through 1982). During that same period, the ratio of State and local funds to Federal VEA funds increased steadily from 5.3 to 1 in 1973 to 10.5 to 1 in 1979, fell to 9.6 to 1 in 1980, fell again to 9.1 to 1 in 1981, but rose to its highest point ever, 10.9 to 1, in 1982.

Enrollments

As reported by the Vocational Education Data System (VEDS), there were approximately 16,833,000 aggregate program enrollments in vocational education during 1981-82 in the 50 States and the District of Columbia. Of these enrollments, 10,259,000 or 60.9 percent were in secondary programs, and 6,574,000 or 39.1 percent were in postsecondary or adult programs.

While it might be deduced from this single set of figures (1) that postsecondary and adult programs were gaining emphasis at the expense of secondary programs and (2) that within the postsecondary and adult sector, technological advances were causing a greater emphasis on 2-year associate degrees and 1 or 2-year certificate programs and less emphasis on adult training and retraining, such conclusions are not yet justified. In some respects, more detailed data on 1981-82 enrollments within occupational programs, as shown in table 4, exhibit the same kind of fluctuations. On the other hand, both business education and health occupations education continued their enrollment increases, although technical education showed the greatest percentage rise in 1981-82. The wide swings in industrial arts education enrollments can be attributed to the fact that State reports on this particular program are notably inconsistent, varying considerably from year to year. In 1981-82, the three highest enrollments are found in business education, trade and industrial education, and consumer and homemaking education; together, they constituted almost 60 percent of the aggregate vocational education enrollment in 1981-82.

Table 5 provides more detail on how total enrollments are distributed by level and institutional type.

TABLE 2

FEDERAL AND STATE/LOCAL VOCATIONAL EDUCATION OUTLAYS

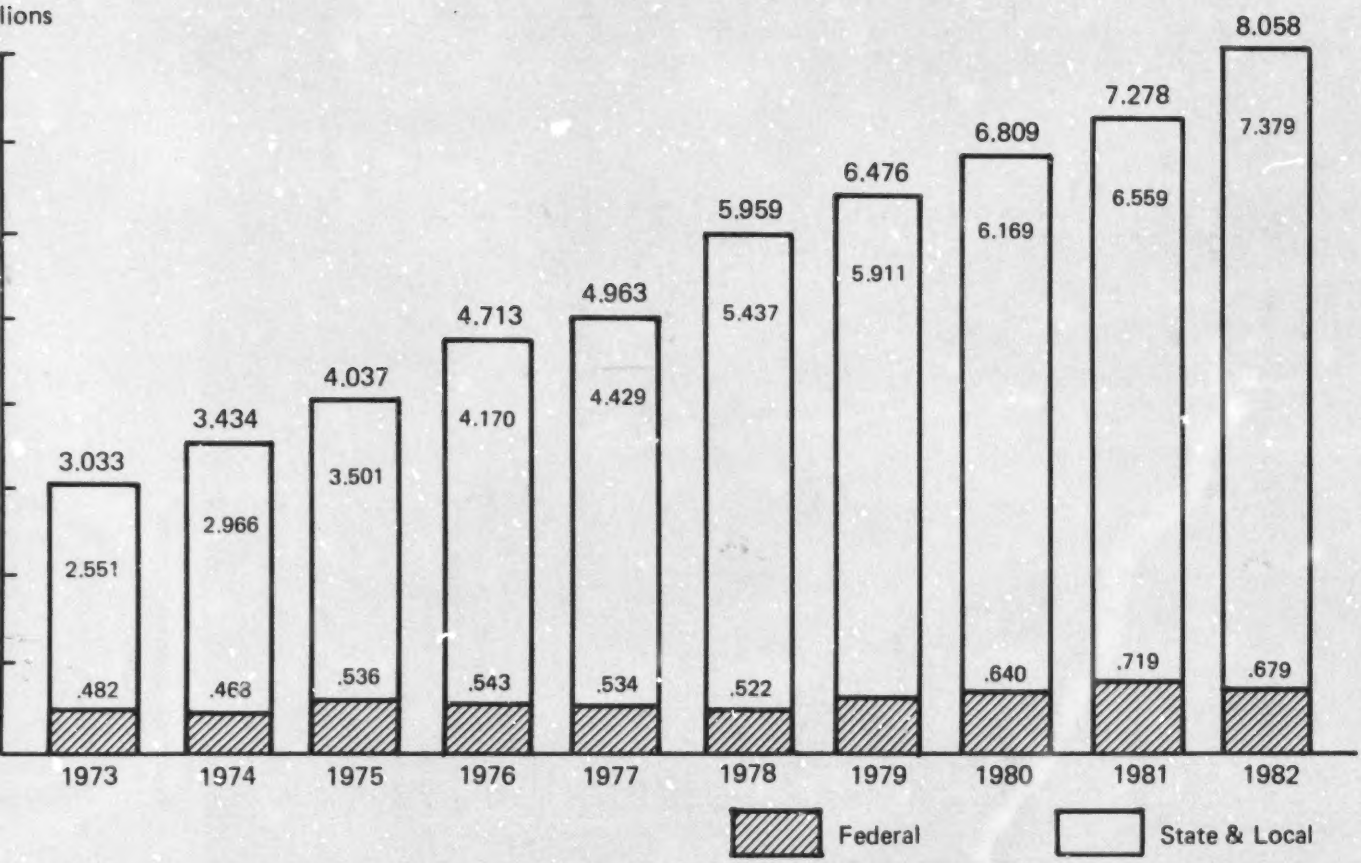
(Including carryover funds) by Sections of the Act for School Year 1981-82: 50 States, D.C., and Puerto Rico

	Federal (000's)	State/Local (000's)	Total (000's)
Section 110, National Priority Programs* (Excess costs only, except for post./adult)			
Subtotal	378,833	3,683,757	4,062,590
Handicapped	70,989	223,499	294,488
Disadvantaged	126,264	501,411	627,675
Limited English proficient	7,723	32,074	39,797
Postsecondary and adult	173,857	2,926,773	3,100,630
Section 120, Basic Grants			
Subtotal	520,692	6,348,571	6,869,263
Vocational programs	413,724	4,839,301**	5,253,025
Work-study	7,766	5,696**	13,462
Cooperative	18,445	247,860**	266,305
Energy	1,034	947**	1,981
Construction	13,019	98,634**	111,653
Full-time personnel	3,265	131**	3,396
Stipends	501	1,936**	2,437
Placement services	930	7,876**	8,806
Industrial arts	6,439	153,299**	159,738
Support services	2,471	847**	3,318
Day care	1,160	809**	1,969
Displaced homemakers	4,426	2,721**	7,147
Residential schools	505	4,863**	5,368
Contracted services	338	3,412**	3,750
State administration	39,967	56,438	96,405
Local administration	6,702	312,046**	318,748
Section 130, Program Improvement and Supportive Services			
Subtotal	105,192	485,582	590,774
Research coordinating units	30,270	24,980	55,250
Guidance and counseling	36,723	357,555	394,278
Preservice and inservice	26,005	33,438	59,443
Grants to overcome sex bias	2,580	1,614	4,194
State administration	8,571	11,240	19,811
Local administration	1,043	56,755	57,798
Section 140, Special Programs for the Disadvantaged***			
Special disadvantaged	17,384	14,067	31,451
Section 150, Consumer and Homemaking			
Subtotal	31,600	527,434	559,034
Non-depressed areas—programs	8,920	233,005**	241,925
Ancillary services	3,998	12,382**	16,380
Depressed areas—programs	15,560	250,070**	265,630
Ancillary services	3,122	8,633**	11,755
Section 102(d), State Planning***			
State planning	4,554	3,154	7,708
TOTAL	679,422	7,378,808	8,058,230

*Funds in Section 110 are duplicate counts of funds listed in Sections 120 and 130 and are not added in the Total figures.
**Detail data for New York not reported for these categories, but included in subtotal.
***No non-Federal funding match required by the Act.

SOURCE: Vocational Education Report by the Secretary of Education to the Congress, 1983.

OUTLAYS FOR VOCATIONAL EDUCATION (VEA)
By Source of Funds



ure 1. Source: U.S. Department of Education, (1) Office of Vocational and Adult Education, data for fiscal years 1973 through 1978; (2) National Center for Education Statistics, Vocational Education Data Systems, data for fiscal years 1979 through 1982.

TABLE 3

NUMBER AND PERCENT CHANGE IN REPORTED TOTAL ENROLLMENT IN VOCATIONAL EDUCATION (VEA) BY INSTITUTIONAL LEVEL: 50 States and D.C., 1980-81 to 1981-82

Institutional Level	Total enrollment/percentage change			
	1980-81	Percent Change	1981-82	Percent Change
Total	16,862,000*	0.8	16,833,000	- 0.2
Secondary	10,466,000	3.7	10,259,000	- 2.0
Postsecondary and adult total	6,396,000*	-3.5	6,574,000	2.8
Regionally accredited institutions	(4,123,000)	-3.0	(4,511,000)	9.4
State approved institutions	(457,000)*	-2.7*	(491,000)	7.3
Other postsecondary institutions	(1,816,000)*	-4.9*	(1,572,000)	-13.4

NOTE: The following definitions apply to the enrollment data collection:

- "regionally accredited institutions" predominantly offer programs to both postsecondary and adult students in 2-year community or junior colleges, 2-year and 4-year technical institutes, 4-year colleges, and universities. The majority of postsecondary students (2-year degree-seekers) attend these institutions.
- "State approved institutions" offer programs almost exclusively to adult students in area vocational schools or centers. Many of those students seeking 1-year or 2-year certificates would be counted in this category.
- "Other postsecondary institutions" predominantly offer programs to adult students attending off-hour programs, such as in vocational and comprehensive high schools.

*Revised from earlier published figures.

Source: U.S. Department of Education, National Center for Education Statistics."

TABLE 4

NUMBER AND PERCENT CHANGE IN REPORTED TOTAL ENROLLMENT IN VOCATIONAL EDUCATION (VEA) BY PROGRAM AREA
50 States and D.C., 1980-81 to 1981-82

Program Area	Total Enrollment/Percent Change			
	1980-81	Percent Change	1981-82	Percent Change
All Programs	16,862,000	0.8	16,833,000	-0.2
Agriculture	843,000	-4.8	892,000	5.7
Marketing and distributive	930,000	-4.8	945,000	1.6
Health occupations	950,000	12.0	1,009,000	6.2
Consumer and homemaking	3,189,000	-6.8	3,062,000	-4.0
Occupational home economics	574,000	3.3	548,000	-4.5
Business	3,615,000	3.8	3,720,000	2.9
Technical	506,000	-1.3	602,000	19.1
Trade and industrial	3,222,000	-2.8	3,172,000	-1.5
Industrial arts	1,900,000	23.5	1,763,000	-7.2
Other programs not elsewhere classified	1,134,000	-4.5	1,120,000	-1.2

Source: U.S. Department of Education, National Center for Education Statistics.

TABLE 5

TOTAL VOCATIONAL EDUCATION ENROLLMENT (VEA), BY INSTITUTIONAL LEVEL AND BY PROGRAM AREA
50 States and D.C., 1981-82

Program Area	Total	Secondary	Postsecondary and Adult			
			Total	Regionally Accredited Institutions	State Approved	Other
Total enrollment	16,833,000	10,259,000	6,574,000	4,511,000	491,000	1,572,000
riculture	892,000	704,000	188,000	83,000	9,000	96,000
rketing and distributive	945,000	396,000	549,000	390,000	23,000	136,000
alth occupations	1,009,000	213,000	796,000	605,000	40,000	151,000
nsumer and homemaking	3,062,000	2,457,000	605,000	344,000	39,000	222,000
cupational home economics	548,000	346,000	202,000	149,000	11,000	42,000
siness	3,720,000	2,070,000	1,650,000	1,287,000	66,000	297,000
chnical	602,000	43,000	559,000	513,000	18,000	28,000
ade and industrial	3,172,000	1,345,000	1,826,000	984,000	272,000	570,000
dustrial arts	1,763,000	1,759,000	4,000	3,000	0	1,000
her not elsewhere classified	1,120,000	925,000	195,000	153,000	13,000	29,000

urce: U.S. Department of Education, National Center for Education Statistics.

A Brief Look at State and Local Administration

While vocational education is administered on both the State and local levels through a variety of governance structures, functions are generally similar from State to State. They include—

- fiscal management of both Federal and State monies for vocational education programs, including reporting on these matters to the appropriate authorities;
- planning the structure of statewide program efforts, including the use of the latest, most appropriate labor market data;
- supervising and otherwise providing technical assistance to local vocational education programs, as in local plan preparation;
- performing mandated evaluation of local programs, including the design and application of appropriate data collection formats;
- assisting in determining compliance with the various Federal and State civil rights statutes;
- providing or otherwise arranging for a wide spectrum of professional development activities, including preservice and inservice training;
- offering many types of leadership to local programs, including informing local officials of policies and guidelines for implementing both State and Federal goals; and
- providing or otherwise arranging for a total program improvement effort in each State, including research, development, and dissemination and their applications to curricula and exemplary programs.

State boards for vocational education also develop and issue policy on special administrative issues arising from the Vocational Education Act, as amended. These include (1) contracting out for vocational education instruction, (2) construction of area vocational schools, (3) operation of residential vocational institutions, (4) vocational work study, (5) placement, and (6) stipends.

Administration of Vocational Programs

State Administration

Improvement of State administration (for example, in program planning and evaluation) is a major thrust of the Act. However, because it is provided for in several different sections of the Act and with varying financial requirements, the overall picture is quite complex, especially regarding the interpretation of outlay or expenditure tables.

The primary mechanism for Federal VEA support of State administration is the section 102(a) appropriation, which is distributed to the States as 2 separate allocations: (1) the subpart 2 Basic Grant (approximately 80 percent of each State's section 102(a) amount); and (2) the subpart 3 Grant for Program Improvement and Supportive Services (approximately 20 percent). From these combined amounts a State may expend whatever it wishes for State administration under two conditions: (1) it must extract these monies from the two subparts in the same 80:20 ratio (but need

not expend them in this ratio), and (2) these monies must be matched by State funds for State administration on at least a dollar-for-dollar basis, during each State fiscal year.

Second, the States receive a section 102(d) State planning allocation specifically intended for State planning, evaluation, and data collection that requires no State match whatsoever.

Third, the States may use section 102(b) funds for State administration of Special Programs for the Disadvantaged and section 102(c) funds for State administration of Consumer and Homemaking Education, without limit, without any special match, and without being required under VEDS to identify the amounts of such expenditures. Funds for State administration from these two sources, therefore, do not enter into the calculations shown here, and they do not appear in table 2.

Finally, under Federal VEA regulations, States are permitted to extract salaries and other expenses of their research coordinating unit (RCU) staffs, which both work directly on and provide administration for the States' program improvement activities, directly from subpart 3. These administrative outlays of Federal VEA funds also may be used without limit, without any special match, and without being reported under VEDS.

During 1981-82, the States' outlays (Federal and State funds combined) for the State-level administration of all vocational education programs under the VEA State plans were just over $123 million or 1.66 percent of total outlays from all sources for these programs. Of this amount, Federal VEA funds accounted for $53 million or 42.84 percent, and State funds accounted for $70 million or 57.16 percent. While these figures are preliminary and do not include unliquidated obligations, it would appear that, nationally, the required dollar-for-dollar match was comfortably exceeded.

Local Administration

All of the financial requirements stated previously for using Federal VEA monies for State administration of vocational education likewise apply to the use of such monies for local administration of these programs, with two exceptions: (1) there is no allowable local counterpart to State RCU staff, as far as administrative support is concerned; and (2) while the State must match Federal VEA funds expended on local administration, it has two alternatives for doing so—either to match on the same dollar-for-dollar basis if State monies appropriated specifically for local administration are the source of the matching funds, or to match on a calculated percentage basis (Federal program funds against all program funds) if there are no such specific State appropriations.

During 1981-82, the local outlays (Federal, State, and local funds combined) for the local administration of all vocational education programs under the VEA State plans were over $376 million or 5.04 percent of total outlays from all sources for these programs. Of this amount, Federal VEA funds accounted for over $7 million or 2.06 percent, and State and local funds accounted for over $368 million or 97.94 percent.

Combined Calculations

In 1981-82, Federal funds used for vocational education comprised 8.44 percent of all outlays, while 9.65 percent of the Federal VEA funds were used for State and local administration. Federal VEA funds comprised 12.16 percent of all outlays for administration. While total outlays for vocational education increased by 10.7 percent in 1981-82, and administrative outlays from all sources

increased by 12.4 percent, administrative outlays from Federal VEA funds increased by only 1.7 percent, compared to 1980-81.

Vocational Instruction under Contract

If permitted by State and local law, eligible recipients (as well as the State agency itself) may contract with private non profit or for-profit vocational training institutions or with other existing institutions capable of carrying out vocational programs for the delivery of vocational instruction. This can be done when the contractor is able to provide substantially equivalent training at lesser cost than an eligible recipient's regular public institutions or when the needed instruction is not available from the latter institutions. In 1981-82, total outlays for this purpose were over $3 million, a 6.0 percent decrease compared to 1980-81. The Federal VEA share of this outlay was $338,000, a drop of 28.7 percent from 1980-81.

Construction of Area Vocational Schools

One of the allowable uses of a State's subpart 2 Basic Grant (under section 120 of the VEA) is the construction of area vocational education school facilities. *Construction* is defined as including construction of new buildings; acquisition, expansion, remodeling, and alteration of existing buildings; site grading and improvement; and architect fees. *Area vocational schools* include four carefully defined types, ranging from departments in comprehensive high schools and community colleges to secondary and postsecondary institutions, specializing exclusively in the offering of vocational education programs. Compared to the peak years of area vocational school construction, from the early 1960s to the mid-1970s, this kind of expenditure has not been a major component of the overall financial picture for vocational education. However, in 1981-82, construction outlays totaled over $111 million, an increase of 40.0 percent over 1980-81. The Federal VEA share of these outlays was $13 million (11.7 percent of the total), an increase of 34.9 percent over 1980-81.

Operation of Residential Vocational Schools

Another of the allowable uses of a State's subpart 2 Basic Grant (under section 120 of the VEA) is the construction, equipping, and operation of residential vocational schools, including room, board, and other necessities. A residential school is an institution that provides vocational education for males and females who are at least 15 years of age and less than 21 years of age at the time of enrollment and who need full-time study on a residential basis in order to benefit fully from the programs offered. Total outlays for this special type of institution were just over $5 million during 1981-82. The Federal VEA component in 1981-82, $505,000, was an increase of 48.9 percent compared to 1980-81.

Vocational Work Study

Vocational work study is one of the legislative purpose programs authorized under the section 120 Basic Grant of the VEA. Its purpose is to provide paid employment for vocational students who require this income in order to remain in school. Since there are numerous restrictions on how monies may be used (as well as for whom and by whom), the program has not proved as popular under the current act as under the previous one, when it received special categorical funding. During the past 3 years for which financial data are available, total outlays have remained relatively

stable. During 1981-82, such outlays totaled over $13 million, an increase of 9.2 percent compared to 1980-81. Federal VEA funds constituted 57.7 percent of these outlays in 1981-82. No enrollment data were collected for this program under VEDS for 1981-82.

Placement

A State may choose to use its section 120 Basic Grant funds to provide placement services for students who have successfully completed vocational education programs, providing that the State board finds that there are inadequate funds for this purpose in other programs or that other services in the area are inadequate to meet the need. Total outlays for placement services increased from over $3 million in 1980-81 to over $8 million in 1981-82, an increase of 130.9 percent. The Federal VEA share in these same years was $345,000 or 9.1 percent of the total in 1980-81, increasing to $930,000 or 10.6 percent of the total in 1981-82.

Stipends

A State may also choose to use its section 120 Federal VEA funds to provide stipends for students entering or already enrolled in vocational education programs (1) if these students have acute economic needs that cannot be met under the vocational work-study program and (2) if the State board finds that either of the two conditions listed under "Placement" are met. This option has been exercised most sparingly by the States. In fact, during the 3 latest years for which financial data are available, only one State exercised this option.

In 1980-81, this State used $869,320 of Federal VEA funds for this purpose but no State or local contributions. In 1981-82, this same State used only $501,000 of Federal VEA funds, contributing $1,936,000 of its own monies for total outlays of $2,437,000. VEDS does not provide a count of the number of vocational students served by this program.

Vocational Student Organizations

The U.S. Department of Education issued an official policy statement in 1981 that gives formal recognition of vocational student organizations as an integral part of vocational instructional programs. The policy statement includes the nine vocational student organizations listed and affirms that the performance and potential of these organizations are compatible with the overall purposes and objectives of vocational education today. Professionals in the various occupational fields, as well as the Assistant Secretary for Vocational and Adult Education, strongly believe that these organizations not only are effective motivators for student performance and enhancers of students' leadership abilities, but also are definite assets for the States and many communities in which these organizations function. The nine vocational student organizations are: Future Farmers of America; National Postsecondary Agriculture Student Organization, Future Business Leaders of America; Office Education Association; Future Homemakers of America, Incorporated; Distributive Education Clubs of America; Health Occupations Students of America; American Industrial Arts Student Association; and Vocational Industrial Clubs of America.

During 1981-82, the total membership of these nine organizations was approximately 1,654,000.

Let's Look at Dimensions of Change Affecting Vocational Education

Vocational education in the years ahead must face up to what I have called "dimensions of change." I find it convenient to group these dimensions of change into three categories: technological, economic, and demographic.

Under *technological change*, we are experiencing a startling acceleration in the modification of old technologies, as well as the introduction of completely new ones. Terms such as "microminiaturization," "robotics," "fiber optics," "bioengineering," and "laser communications" are becoming part of our language, if not yet household words. Still more changes will come as expected increases in private sector investment in research and development occur. What this means is that the corresponding rate at which skills in many fields become obsolete is also increasing. Therefore, we must devote our attention not only to preparing new workers at higher skill levels, but also to retraining hundreds of thousands of experienced workers who face structural unemployment.

Under *economic change*, we have the problems of overall low productivity; deteriorating competitive position in many manufacturing industries such as steel, shipbuilding, and production electronics; aging and inefficient plants; an abnormally high real interest rate; and residual inflation. Everywhere we read that the Nation's industry has lost millions of jobs that will never come back, in such major "blue-collar" fields as automobile manufacturing and garment-making. Once again, technological change is an important factor in this economic change. Some studies predict that before long robots will supplant millions of factory workers and eventually could be handling all manufacturing chores. Many middle-aged, skilled, but unemployed, workers are having severe problems finding new jobs and are increasingly seeking retraining as the answer; this has distinct implications for vocational education. It is gratifying to note public schools in many communities are reviewing course offerings in order to prepare students for available jobs. Clearly, addressing the needs of the economy has become an almost paramount factor in achieving excellence in vocational education for the foreseeable future.

Under *demographic change*, we have the overall aging of the Nation's work force; a projected decrease in the percentage of the work force composed of youth (but an increase within that age bracket of minorities); an out-migration of skilled workers from the Frost Belt to the Sun Belt; a tendency for adults to remain in the work force longer and to opt for later retirement; a continued influx of women into the work force, particularly into non-traditional occupations; an increasingly mobile work force; and a continuing concentration of poor, unskilled or low-skilled workers in densely populated urban areas. Recent data also indicate that, relatively speaking, the rural poor are in even more difficult straits than a decade ago. Here again, there are strong implications for vocational education during the 1980s. For example, while youth unemployment still constitutes a severe problem, it may well be automatically eased as the supply of new labor dwindles. This, however, will not change the fact that we will still be short of workers with the right kinds of skills.

A Look Ahead: The Future of Vocational Education: Some Areas of Concern Needing Special Emphasis

Partnerships and Collaboration

President Reagan has declared the 1983-1984 school year the "Year of Partnerships." He said at a White House ceremony in October 1983 that "everyone must get involved so I am directing the

Federal Government to promote partnerships in education in every way that it can." Vocational education has had a better record than any part of education in working with the private sector. However, we must become much more serious about developing true partnerships with business, industry, and organized labor. These partnerships must include close working relationships with academic and general education, with the defense establishment and with private training programs.

Curriculum Development

An expanded curriculum coordination network will be necessary to meet the changing demands for training the rest of this century. More emphasis must be placed on telecommunications, on robotics and automation, on understanding technology, and on applied mathematics and science in our curriculum development efforts.

Skilled Work Force Development

Vocational education must play an increasingly active role in preparing America's skilled work force. Customized or quick start training for new and developing businesses needs to become operative in every State.

Vocational Education and Defense Preparedness

A much closer working relationship with the defense industrial base, the active military and reserve forces, particularly in regard to skilled work force shortages, must be maintained. The Joint Committee on Education and Training for National Security, which is cochaired by the Assistant Secretary for Vocational and Adult Education, U.S. Department of Education, and the Assistant Secretary for Manpower, Reserve Affairs, and Logistics, U.S. Department of Defense, is making a major contribution to this effort, but much more needs to be done.

Equity and Access

Access to and equity in quality vocational education programs will be a major concern of vocational education during the next several decades. Great progress has been made in increasing access to vocational education for the handicapped, for minorities, and for the disadvantaged, but this access has not always been in occupational areas offering the highest pay or chances for advancement.

As part of equity and access, we must be sure that all students develop the necessary and marketable skills as well as career planning and academic skills that will enable them to seek education for their employment in better paid and in more skilled occupations.

Governance

The governance of vocational education will continue to be a concern. The National Center for Research in Vocational Education, in cooperation with the National Association of State Directors of Vocational Education, is conducting a study that should shed some light on some of the governance problems such as staffing, tenure, extent of authority for decision making, and amount of

time spent in managing vocational education at the State level. It is clear we need strong full-time State administrators who have both leadership skills and broad understanding of vocational education.

The Dropout

The Department of Education statistics show that more students are now leaving high school before they graduate than in previous years. According to these statistics, the National graduation rate has declined from 77.2 percent to 72.8 percent between 1972 and 1982. This represents a dropout rate of 27.2 percent. This trend must be reversed! However, if we are to reverse the dropout rate at the secondary levels, more emphasis must be given to vocational education and to relating education to the world of work. Secretary Bell has frequently spoken about "how critical it is for a Nation committed to equal educational opportunity, full employment, and individual fulfillment to attract and hold teenagers in school." One of Secretary Bell's goals for the next 5 years is to cut the high school dropout rate to 10 percent.

Educational Reform

We all are familiar with the National Commission on Excellence in Education report, *A Nation at Risk* (1983). The report sums up the overall status of the American education system: "Our society and its educational institutions seem to have lost sight of the basic purposes of schooling and of the high expectations and disciplined effort needed to attain them." The report indicates that education is experiencing a performance lag at a time when technology is changing the face of American life, including the world of work, and when the demographic pendulum is swinging toward an older population and work force.

The education system is burdened with problems difficult to solve—difficulties in retaining quality teachers and in attracting the more promising graduates to teaching. The persistent questions remain concerning how to create a rewarding pay scale for teachers and how to absorb the cost of maintaining physical plants and educational equipment. The overall challenge to the education community is awesome—yet it should not be insurmountable. Vocational education, as an essential component of American education, must adapt to the challenges it faces.

The importance of vocational education has certainly not been diminished by the emphasis on the "new basics" at the high school level. President Reagan made the Administration's position clear in this regard when, in his address at the Vocational Industrial Clubs of America's National Skills Olympics at Louisville, Kentucky, in June 1983 he said:

> America's tradesmen and women are the pistons that drive the engine of our economy. This country was built with the sweat and determination of hard-working men and women who, like many of you, loved to work with their hands as well as their minds. . . . our drive for excellence in education must reach every student in every school in every subject. We should see that all our young people get a good grounding in English and literature, history, math, science, and the other basics. But we must also recognize that our vocational classrooms are just as important as any other. And we should insist that the vocational courses we teach prepare this generation with the skills they need for real jobs.

Questions and Answers

Robert M. Worthington

Question: You made reference to the negative effects of the amendments to the 1963 legislation. Would you comment on some of the possibly beneficial results of those amendments. I refer specifically to the provision for a national center for research, the statutory authorization of the research coordinating units, and a nationally uniformed information system.

If you recall from my earlier statement, I said that the work of President Kennedy's panel of consultants, which led to the Vocational Education Act of 1963, was the best thing that ever happened to vocational education. We saw its impact reflected in the States. When I was State director of vocational education in New Jersey, we increased our enrollment in vocational education in that State by 460 percent over a 7-year period. The act gave us flexibility, as well as giving us some of the components you mentioned—the research coordinating units and the Vocational Education Data System. The formation of the research coordinating unit was especially helpful, as it gave us the capacity to carry out planning, and research and evaluations that had never been done before at the State level. The negative effects to which I was referring were the burdens placed on the States by the subsequent amendments. The original act and the first set of amendments carried no such burdensome mandates. But the later amendments reflect the fact that Congress was looking to vocational education as an opportunity to test the capacity of education to solve some of our social welfare problems. Vocational educators were mandated to act in an experimental capacity, in fact testing approaches to problems that could very well have been tested in other ways. In a sense, we should perhaps take this as a compliment, since vocational educators are often ahead of other educators in innovation and new approaches to teaching. But my point is that the original Vocational Education Act was a landmark piece of legislation that has had a tremendous impact on the field. We must hope that the new legislation to replace it will be at least as good as the original act.

Question: I have a concern relating to your point about educators staying abreast technologically. It is imperative to the vitality of vocational education that we keep up-to-date with the new high technology as well as with the changing technologies of the vocational service areas. At the same time, however, I hope we don't lose sight of the fact that the real growth areas in terms of percentage of jobs. To clarify, real growth in terms of the total number of workers needed is in some of the service areas—such as janitorial and clerical workers—while the high-technology areas simply have a high percentage growth rate, with its actual numbers of people needed being smaller since there were fewer of these workers from the beginning. A common misunderstanding people have is that the occupations of the future will be completely different from those today. But research and data available tell us that in 1990 and beyond, the jobs we will see are the same jobs we see today—with the new high technology incorporated. It is imperative that vocational educators keep a grasp on reality and keep their mission within sight. We don't want to throw out everything we have and start over again. We want to adopt the new technology and incorporate it into the jobs we are already doing.

That's a very good point. A recent study at Stanford University projects that only 2 of the 20 jobs that will be in demand for the rest of this century will require a bachelor's degree. Most of the 20 jobs are service occupations; some are manufacturing. Recently, in talking with robotics experts in Detroit, I found that the average robotics technician, the type of individual for which we are trying to develop training programs, has the basic skills of an auto mechanic, knows something about hydraulics and precision measurement, and may have other basic skills that we have been teaching in vocational education. What I see is the need to teach transferable skills—skills that can be used in several occupations.

Question: In table 4, you illustrate the enrollment number for industrial arts, and you attribute the reduction of this number to the inconsistent reporting factors at the State level. As I work with the industrial arts State supervisors throughout the Nation, they suggest that perhaps that number may be growing smaller because of State mandates for basic skills causing the reduction of certain programs. Should we be concerned with this? To take this question a little further, if that pendulum continues to swing, will we see a reduction of vocational education at the secondary level?

I do believe that much of the inconsistency and variation of data is due to the way that some of the State boards for vocational education treat industrial arts. Some have chosen not to fund it. In fact, I think that less than half of the States do fund industrial arts. And when the states report to the Federal Government, they report only those programs that are in their State plans. Therefore, the industrial arts enrollment numbers fall through the cracks. There is no question that as the academic requirements are increased for all students, there is going to be little time left in the day for such programs as music, art, industrial arts, vocational education, and others. I am very pleased that the National Center for Research in Vocational Education has a National commission taking a look at this problem and will be reporting its recommendations to the Secretary of Education in November of this year. Certainly, if we are going to reduce the dropout rate as the Secretary has challenged us all to do, we are going to have to find a way to retain the young people who may not be adaptable to pure kinds of abstract learning, which so many of the academic teachers tend to use in their classrooms.

Question: Although *The Nation at Risk* report indirectly addresses vocational education, what would you say we need to do to improve vocational education and stay ahead of the types of criticism found in *The Nation at Risk*?

I think that vocational education has to be kept up-to-date as much as possible. I think the movement that the State directors are making to develop a 2-year program on the principles of technology will have a significant impact. These programs need to be flexible with the times and the era. Along with flexibility, we need teachers who are knowledgeable about occupations, teachers who are imaginative and who can teach applied math and science in interesting ways. Perhaps some of the applied math that is taught in vocational education—in industrial arts and business education—can count for some of those new basics that are being pushed in many of the States.

Question: You mentioned the importance of work experience as part of the program with vocational education. Our statistics on participation in co-op programs are relatively low—at the moment maybe 10 percent of our students participate in co-op programs. What are the views at the Federal level of cooperative education, and what do you see as the major barriers in not having a greater percentage of students involved in cooperative education?

The present enrollment is about 600,000 students. Six hundred thousand out of 17 million may not seem like very many. If we use rigorous guidelines for quality cooperative education—criteria such as a written agreement between the employer and the school, with the school to act in a supervisory capacity—the students would get a valuable experience. If we used those criteria, I would rather have 600,000 quality co-op students than 6 million low-quality students. I think that getting a job, a real job, earning a paycheck under the supervision of the school, and having a seminar to discuss the learning experience is the way to go. I hope we can expand on this concept. Also, I have asked our staff to find ways to expand the apprenticeship type of education, which has decreased in enrollment in this country. Virtually every study I have seen says we ought to be training more apprentices. I see apprenticeship programs as the best possible cooperative work experience program for making the transition from school to work.

Question: You have not mentioned entrepreneurship education and the plans for the future. Would you address this issue?

All of us in the vocational education setting need to be entrepreneurs. As far as research goes, as far as promoting small business enterprise and entrepreneurship is concerned, I think vocational education has the best opportunity of any segment of the public school system to support entrepreneurship. As you know, I have been actively involved in promoting entrepreneurship since the seventies. I don't see any reason why every student who goes through vocational education, toward the end of that experience, whether a postsecondary- or secondary-level program, shouldn't at least be introduced to the entrepreneurship route. This country is a Nation of entrepreneurs, and we need to continue to encourage entrepreneurship.

Question: What is the potential of legislating entrepreneurship as a part of the new legislation?

It is in the administration's legislative proposal as an allowable expenditure. Vocational education has great potential to develop skills necessary for self employment as small business owners. We must encourage but not try to legislate expansion of entrepreneurship education.

Question: You've talked a good deal about partnership and collaboration with business and industry and education. Are there any new creative approaches to these partnerships that we might be looking at today?

I think the best source of those creative partnerships would be the White House Office of Private Sector Initiatives. This group has created a data bank of private sector initiatives, many of which have qualified for the presidential citation, which is a citation that is given for private sector collaboration. I would suggest that you contact the President's special assistant for private sector initiatives at the White House. I'm sure he can give you some good ideas; he might even give you access to his data bank.

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